

**LWG response to EPA comments on Revised Draft, Table 1,
Selected Acute and Chronic Ecological Screening Levels (Eco SLs) for Chemicals in Water.
September 15, 2006**

COMMENT NO.	EPA COMMENT	COMMENT CATEGORY	NOTES
General Comments			
C1	Changes to Table 1: EPA has recommended a number of changes to the values presented in the table. Specific changes are provided in the specific comments portion of this review. These changes should be incorporated into the Round 2 Comprehensive Site Summary and Data Gaps Analysis Report.	3	A screening against all available ecological screening values will be presented in an Appendix and exceedences will be discussed as appropriate in the Round 2 Comprehensive Report and Data Gaps Analysis.
C2	<p>Hierarchy for Value Selection: Comments were made on the hierarchy for selecting values in the companion TM for this table (<i>Process for Selecting Acute and Chronic Water Screening Levels for Portland Harbor Surface Water, Groundwater, and Transition Zone Water</i>, DRAFT, April 29, 2005). The hierarchy for selection of sources for water screening levels (SLs) does not appear to have been fully followed during selection of the values in the revised Table 1 (i.e., hierarchy as recommended in EPA comments dated March 24, 2006 on an earlier draft of the protocols for selecting acute and chronic water screening levels). Specifically, several available national recommended chronic water quality criteria have not been incorporated into the table.</p> <p>For the readers benefit, it should be clear in this table or elsewhere the hierarchy that was used to selected water screening values.</p> <ol style="list-style-type: none"> 1. Level 1: The lowest of the national recommended water quality criteria and the proposed State of Oregon water quality criteria as specified in OAR 340-41Table 33. 2. Level 2: The Tier II values from Suter and Tsao (1996). 3. Level 3: The USEPA (2004) proposed PAH specific final chronic values for individual PAH compounds found in Table 3-4 of USEPA (2004). Use of the individual PAH guidelines from USEPA (2004) as screening levels would eliminate the need to use a screening level for benzo(a)pyrene as a surrogate for other PAH compounds. 4. Level 4: Canadian Water Quality Guidelines. 5. Level 5: more protective of acute ODEQ guidance values (ODEQ 2004) or Tier II acute values for Suter and Tsao 	4,5	<p>The EPA proposed hierarchy was followed in the May 25, 2006 document. Several updated national recommended chronic water quality criteria have been incorporated into the table according to the updated EPA 2006 NRWQC provided to LWG by Eric Blischke on Sept. 18,2006. There are instances where EPA contradicts its proposed hierarchy and further clarification is needed on the application of the water criteria hierarchy.</p> <p>In addition, while we can apply a safety factor of 50, we would also like to add a range of safety factors, given the uncertainty associated with the use of safety factors.</p>

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	divided by a safety factor of 50. In general, if there is a reasonable surrogate for the chemical in regard to chronic effects, this should be consulted before going to acute effects. 6. Literature derived values.		
C3	<u>Bioaccumulative Potential</u> : Only effects based criteria are provided here, but it should be noted in a table footnote that bioaccumulative chemicals detected in water will not be screened per EPA guidance and previous EPA comments, but will be carried forward for further analysis using other methods or pathways (e.g., dietary or tissue).	5	We understand EPA's comment to mean that bioaccumulative chemicals detected in water will not be screened <u>out</u> based on screening against surface water ecoSLs. We agree that they will be carried forward for further analysis using other lines of evidence.
C4	<u>Amphibian Specific Water SLs</u> : Table 2 (dated September 6, 2005) which contained the amphibian specific toxicity SLs were not included. In general, EPA believes that the SLs presented in the May 25, 2006 Ecological Screening Level table should be protective of all aquatic receptors. However, EPA reserves the right to re-evaluate the Table 1 SLs to ensure they are protective of amphibians or develop amphibian-specific values as part of the baseline ecological risk assessment.	3	LWG agrees that the SLs presented in the May 25, 2006 table are protective of amphibians.
C5	<u>Application of Criteria</u> : The proposed screening criteria should be applied to both total and dissolved contaminant concentrations in accordance with the procedures outlined in the National Recommended Water Quality Criteria. In addition, these values should be applied to both surface water and transition zone water.	3,4	LWG seeks further discussion of use of total contaminant concentrations in the screening process, particularly for metals where the dissolved concentration is the bioavailable fraction and therefore more appropriate for risk-based decisions. The proposed screening criteria will be applied to both total and dissolved contaminant concentrations. But, for those chemicals for which the criteria are based on dissolved concentrations, e.g. cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, selenium, silver, and zinc, dissolved concentrations will be used in the risk assessment.
C6	<u>National Recommended Water Quality Criteria</u> : The selection hierarchy employed to generate Table 1 should cite the most recent EPA <i>National Recommended Water Quality Guidance</i> , dated 2006.	3	LWG agrees to incorporate the most recent EPA <i>National Recommended Water Quality Guidance</i> , dated 2006, into the selection hierarchy.

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	Instead, it cites an earlier 2002 version of the guidance. The up-to-date 2006 guidance should be used, which may change several chronic values (see also specific comments below).		
C7	<u>Acute vs. Chronic Screening Levels</u> : EPA has noted a number of instances where the proposed chronic SLs in Table 1 are higher than the proposed acute SLs. While this is unavoidable in some instances (e.g. zinc, where mortality is a more sensitive endpoint than either reproduction or growth, thus resulting in the national acute zinc criterion being marginally higher than the national chronic zinc criterion), other instances are due to the hierarchical selection process used to obtain the various SLs. In instances where the acute and chronic SLs were derived using different methodologies (e.g., certain PAHs as described in next comment below), EPA recommends not including an acute value. For chemicals without an acute SL, EPA recommends that a notation such as NA (none available) be placed in cells of the table without screening levels, rather than just leaving the cell blank. Such a notation should also be placed in the cells that give the reference or source for acute SLs without a numeric value.	3	LWG agrees to exclude acute SLs in cases where acute and chronic SLs were derived using different methodologies. LWG also agrees to place the notation NA in cells of the table without screening levels, rather than leaving the cell blank, and in the cells that give the reference or source for acute SLs without a numeric value.
C8	<u>Screening Levels for PAHs</u> : EPA notes that while many of the selected PAH chronic SLs are derived from narcotic toxicity of the individual PAH compounds, many of the acute SLs are derived from studies of photo-induced PAH toxicity. Photo-induced PAH toxicity is a specific mode of toxic action, different from non-specific toxicity elicited by narcosis. Chemicals eliciting toxicity via specific modes of action generally require lower concentrations to elicit toxicity relative to concentrations required to elicit toxicity via narcosis, which is the likely reason that a number of the individual PAH photo-induced acute toxicity SLs are lower than the corresponding narcosis based chronic SLs. EPA recommends eliminating the acute value in these instances.	3	LWG agrees to eliminate the acute values.
C9	<u>References</u> : A number of references cited in the body of Table 1 are not presented in the reference section appended to the table.	3	LWG agrees to supply the relevant missing references. Some references were rendered obsolete by EPA

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	The missing references must be added to the reference section of the document.		September 15, 2006 comments.
Specific Comments (All specific comments are on the May 25, 2006, version of Table 1, Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water.)			
1	Dioxin (2,3,7,8-TCDD) – The chronic SL should be taken from EPA (1984) and so should be changed to 0.00001 µg/L (10 ng/l), not the 0.0001 (100 ng/l) µg/L given in Table 1.	4, 5	The proposed EPA value is an AWQC bioconcentration factor. Per EPA comments we have agreed to use effects-based endpoints and the proposed EPA value is not an effects-based endpoint. The LWG will apply the chronic, effects-based SL value of 0.0001 µg/L.
2	Aluminum – A note should be added that these criteria only apply to waters within a pH range of 6.5 – 9.0 as given in the national AWQC.	3	LWG agrees to include this note.
3	Arsenic – It should be noted that the derivation is from As(III), not As(V). The value should be applied to total arsenic.	3	LWG agrees to include this note.
4	Beryllium – The Tier II chronic and acute values from Suter and Tsao should be used instead of the DEQ Guidance Values (Table 33C). The acute and chronic values are 35 µg/l and 0.66 µg/l respectively.	3	
5	Iron – The acute SL is based on multiplying the chronic AWQC x 10. This yields an acute SL of 10,000 µg/L. However, there are a number of literature citations available that demonstrate acute toxicity of iron at concentrations less than 10,000 µg/L, implying that an acute iron SL of 10,000 µg/L is too high, and not protective of aquatic resources. Furthermore, the chronic AWQC was based on a field study, and so extrapolating from this to an acute SL is not straightforward. EPA recommends retaining the 1,000 µg/L chronic value, but not including an acute SL for iron.	3	LWG agrees to apply the 1,000 µg/L chronic value for iron.
6	Selenium – Add a comment into the citations and notes column of the table stating that the listed acute value is for selenate, and is the lower of the published criteria for selenate and selenite.	3	LWG agrees to include this comment in the table.

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7	2-Methylnaphthalene – Add a comment into the citation and notes column of the table stating that the listed acute and chronic SLs are for the surrogate compound 1-methylnaphthalene.	3	LWG agrees to include the comment into the citation and notes column of the table.
8	Acenaphthene - Add a comment into the citation and notes column of the table stating that the listed acute and chronic SLs are the EPA calculated FAV and FCV for sediment quality guideline development.	3	LWG agrees to include the comment into the citation and notes column of the table.
9	Benzo(b)fluoranthene – Delete the acute SL. See general comment above.	3	LWG agrees to delete the acute SL.
10	Benzo(b+j)fluoranthene – Delete the acute SL. See general comment above. The chronic SL should be the chronic SL of 0.6415 µg/L for the surrogate compound benzo(k)fluoranthene.	3	LWG agrees to delete the acute SL.
11	Benzo(b+k)fluoranthene – Delete the acute SL. See general comment above. The chronic SL should be the chronic SL of 0.6415 µg/L for the surrogate compound benzo(k)fluoranthene.	3	LWG agrees to delete the acute SL.
12	Benzo(g,h,i)perylene – Delete the acute SL. See general comment above.	3	LWG agrees to delete the acute SL.
13	Benzo(k)fluoranthene – Delete the acute SL. See general comment above.	3	LWG agrees to delete the acute SL.
14	Chrysene – Delete the acute SL. See general comment above.	3	LWG agrees to delete the acute SL.
15	Pyrene – Delete the acute SL. See general comment above.	3	LWG agrees to delete the acute SL.
16	2,4-D – The lowest acute LC ₅₀ in ECOTOX is 1600 µg/L, which when divided by two yields an acute SL of 800 µg/L. The lowest chronic SL reported in MacDonald ES (1999) is the 4 µg/L value given as the Ontario water quality objective (1999) and should be used instead of the proposed chronic SL of 47 µg/L.	3	LWG agrees to use the Ontario water quality objective(1999) of 4 µg/L.
17	2,4'-DDD – Footnote ii of the EPA (2006) <i>National Recommended</i>	3	LWG agrees to apply the EPA 4,4'-DDT acute and

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	<i>Water Quality Criteria</i> states the EPA 4,4'-DDT criteria of 1.1 µg/L (acute) and 0.001 µg/L (chronic) applies to DDT and its metabolites, and that the total concentration of DDT and its metabolites should not exceed these concentrations. As DDD is a metabolic transformation product of DDT, the DDT criteria of 1.1 µg/L and 0.001 µg/L should be used as the acute and chronic SLs, respectively for 2,4'-DDD. Footnote T of Table 33B of Oregon's water quality criteria also contains the same statement.		chronic criteria to DDT and its metabolites.
18	2,4'-DDE - Footnote ii of the EPA (2006) <i>National Recommended Water Quality Criteria</i> states the EPA 4,4'-DDT criteria of 1.1 µg/L (acute) and 0.001 µg/L (chronic) applies to DDT and its metabolites, and that the total concentration of DDT and its metabolites should not exceed these concentrations. As DDE is a metabolic transformation product of DDT, the DDT criteria of 1.1 µg/L and 0.001 µg/L should be used as the acute and chronic SLs, respectively for 2,4'-DDE. Footnote T of Table 33B of Oregon's water quality criteria also contains the same statement.	3	LWG agrees to apply the EPA 4,4'-DDT acute and chronic criteria to DDT and its metabolites.
19	2,4'-DDT - 4,4'-DDT should be used as a surrogate compound for 2,4'-DDT, thus the 4,4'-DDT chronic criterion of 0.001 µg/L should be used as the chronic SL for 2,4'-DDT.	3	LWG agrees to apply the EPA 4,4'-DDT acute and chronic criteria to DDT and its metabolites.
20	4,4'-DDD - Footnote ii of the EPA (2006) <i>National Recommended Water Quality Criteria</i> states the EPA 4,4'-DDT criteria of 1.1 µg/L (acute) and 0.001 µg/L (chronic) applies to DDT and its metabolites, and that the total concentration of DDT and its metabolites should not exceed these concentrations. As DDD is a metabolic transformation product of DDT, the DDT criteria of 1.1 µg/L and 0.001 µg/L should be used as the acute and chronic SLs, respectively for 4,4'-DDD. Footnote T of Table 33B of Oregon's water quality criteria also contains the same statement.	3	LWG agrees to apply the EPA 4,4'-DDT acute and chronic criteria to DDT and its metabolites.
21	4,4'-DDE - Footnote ii of the EPA (2006) <i>National Recommended Water Quality Criteria</i> states the EPA 4,4'-DDT criteria of 1.1 µg/L (acute) and 0.001 µg/L (chronic) applies to DDT and its metabolites,	3	LWG agrees to apply the EPA 4,4'-DDT acute and chronic criteria to DDT and its metabolites.

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	and that the total concentration of DDT and its metabolites should not exceed these concentrations. As DDE is a metabolic transformation product of DDT, the DDT criteria of 1.1 µg/L and 0.001 µg/L should be used as the acute and chronic SLs, respectively for 4,4'-DDE. Footnote T of Table 33B of Oregon's water quality criteria also contains the same statement.		
22	4,4'-DDT - The chronic 4,4'-DDT criterion from EPA (2006) is 0.001 µg/L, and should be used as the chronic SL instead of the 0.013 µg/L value given in Table 1.	3	LWG agrees to apply the EPA 4,4'-DDT acute and chronic criteria to DDT and its metabolites.
23	Chlordane - The chronic chlordane criterion from EPA (2006) is 0.0043 µg/L, and should be used as the chronic SL instead of the 0.17 µg/L value given in Table 1. The acute SL of 2.4 should be divided by 2 so it is comparable to other AWQC used in Table 1. This is because this 1980 AWQC was derived using methods different from those derived since 1985. As given in footnote G of USEPA's 2006 AWQC compilation, this would also apply to other OC pesticides such as chemicals that use chlordane as a surrogate (e.g., cis-Nonachlor), endrin, aldrin, etc.	3	LWG agrees to use the updated EPA (2006) criterion for chlordane and other OC pesticides such as chemicals that use chlordane as a surrogate.
24	cis-Nonachlor – This compound is a component of the commercially available technical chlordane mixtures historically sold in the United States. In the absence of a specific cis-nonachlor criterion, the chlordane chronic criterion of 0.0043 µg/L should be used as the chronic SL instead of the 0.17 µg/L value given in Table 1. The acute SL should be adjusted as in comment 23.	3	LWG agrees to use the updated EPA (2006) criterion for chlordane and other OC pesticides, such as chemicals that use chlordane as a surrogate.
25	δ-Hexachlorocyclohexane – Toxicity data for lindane (γ-hexachlorocyclohexane) should be used as a surrogate for this compound, resulting in acute and chronic SLs of 0.95 µg/L and 0.08 µg/L, respectively, instead of the values of 100 µg/L and 2 µg/L given in Table 1.	3	
26	Heptachlor epoxide - The chronic heptachlor epoxide criterion from EPA (2006) is 0.0038 µg/L, and should be used as the chronic SL	3	LWG agrees to adjust the chronic and acute values for heptachlor epoxide.

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	instead of the 0.0069 µg/L value given in Table 1. The acute SL should be adjusted as in comment 23.		
27	Heptachlor - The chronic heptachlor criterion from EPA (2006) is 0.0038 µg/L, and should be used as the chronic SL instead of the 0.0069 µg/L value given in Table 1. The acute SL should be adjusted as in comment 22.		See response to comment 26.
28	Oxychlordane - This compound is a component of the commercially available technical chlordane mixtures historically sold in the United States. In the absence of a specific oxychlordane criterion, the chlordane acute and chronic criteria of 2.4 µg/L (divided by two as in comment 23) and 0.0043 µg/L should be used as the chronic SL instead of the 1.12 µg/L and 0.0448 µg/L values given in Table 1.	3	LWG agrees to use chlordane as a surrogate for oxychlordane.
29	Retene – The source of the proposed retene SLs (Billiard et al. 1999) is not given in the reference section of Table 1. Review of the Billiard et al. 1999 citation by EPA finds that an acute SL of 176.5 µg/L can be derived by dividing the measured zebrafish LC ₅₀ given in the paper by two. The zebrafish adverse effect threshold for growth given in the paper is 100 µg/L, which should be used as the chronic SL.	3	LWG agrees to supply the Billiard et al. (1999) reference.
30	Silvex – EPA cannot confirm the acute and chronic SL values of 130 µg/L and 5.2 µg/L proposed in Table 1. We cannot find a Johnson 1987 citation describing silvex toxicity to aquatic life, and the citation is not given in the reference section of Table 1. However, ECOTOX presents an LC ₅₀ for amphipods at 250 µg/l, which would result in an acute SL of 125 µg/l and chronic SL of 5.0 µg/l. The lower ECOTOX-based values should be used.	3	LWG agrees to use the EPA proposed values for Silvex.
31	Total DDT - The 4,4'-DDT chronic criterion of 0.001 µg/L given in the EPA (2006) <i>National Recommended Water Quality Criteria</i> should be used as the chronic SL for Total DDT.	3	LWG agrees to apply the EPA 4,4'-DDT acute and chronic criteria to DDT and its metabolites.
32	Pentachlorophenol – The citations and notes column of Table 1 should state that the value of the PCP criterion is pH dependent.	3	LWG agrees to add the comment to the citations and notes column.

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	The listed SLs were calculated for waters at a pH = 7.2, and will vary with the pH of the water column.		
33	Total phenols – The values in Table 1 are actually the Tier II values for phenol (based on the Great Lakes Quality Initiative) not total phenols. The name in the contaminant of interest column should be changed to reflect this. EPA does not believe development of SLs for total phenols is needed.	3	LWG agrees to revise the name of the contaminant to phenol.
34	Acute SLs for butylbenzyl phthalate, dibutyl phthalate, diethyl phthalate, dimethyl phthalate and di-n-octyl phthalate. Although the values are correct as given based on the identified guideline sources in Table 1, several, of the phthalate acute SLs as derived may exceed the maximum water solubility of these compounds. As a result, EPA recommends that for the phthalates identified above, the acute SL should be calculated by multiplying the chronic SL by 50 resulting in an acute SL of 150 ug/l.	3	LWG agrees to use an acute SL value of 150 ug/l at the direction of EPA because the acute value may exceed the water solubility of these compounds.
35	Hexachlorobenzene – To eliminate this instance of where the chronic SL exceeds the acute SL, EPA suggests that the draft EPA acute criterion of 6 µg/L be used as the acute SL instead of the table value of 3.5 µg/L. The Mayer and Ellersieck (1986) citation is not given in the reference section of Table 1.	3	LWG agrees to use the draft EPA criterion. The Mayer and Ellersieck (1986) citation is obsolete as it was the source of the acute SL for hexachlorobenzene.
36	1,1,2,2-Tetrachloroethane – Although both acute and chronic SLs are correct as presented given the data sources for the SLs, to eliminate this instance of where the chronic SL exceeds the acute SL, EPA recommends that the source of the chronic SL be changed to the Tier II value as opposed to the ODEQ value. This would result in the chronic SL becoming 610 µg/L.	3	
37	1,2,3-Trichloropropane – The lowest LC ₅₀ in Kielhorn et al. (2003) is 4100 µg/L for <i>Ceriodaphnia dubia</i> . Using the acute and chronic SL derivation method given in Table 1 (i.e. LC ₅₀ /2 and LC ₅₀ /50) with the <i>C. dubia</i> measured LC ₅₀ , the acute and chronic SLs should be 2050 µg/L and 82 µg/L, respectively.	3	LWG agrees to use the EPA proposed acute and chronic SLs for 1,2,3,-Trichloropropane.

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38	1,2,4-Trimethylbenzene – Based on the EPA recommended acute and chronic SLs for ethylbenzene (used as a surrogate compound for 1,2,4-trimethylbenzene), the acute and chronic SLs should be 130 µg/L and 7.3 µg/L, respectively. See Specific Comment 44 for the discussion of how EPA obtained the ethylbenzene SLs.	3,4	See response to comment 44.
39	1,3,5-Trimethylbenzene - Based on the EPA recommended acute and chronic SLs for ethylbenzene (used as a surrogate compound for 1,3,5-trimethylbenzene), the acute and chronic SLs should be 130 µg/L and 7.3 µg/L, respectively. See Specific Comment 42 for the discussion of how EPA obtained the ethylbenzene SLs.	3,4	See response to comment 44.
40	1,4-Dioxane – The citations and notes column of Table 1 should indicate that the 1,4-dioxane SLs are based on a measured LC ₅₀ for the amphipod <i>Gammarus pseudolimnaeus</i> .	3	LWG agrees to insert this comment.
41	Ammonia – The citations and notes column of Table 1 should contain several clarifying remarks as to how the ammonia SLs were derived. The concentration units are µg/L as total ammonia-N, not the µg/L units that are correct for every other chemical in Table 1. Both the acute and chronic SLs presented in Table 1 are the ammonia criteria for waters where salmonids are present. The acute SL is pH dependent, with the listed acute SL calculated in waters at a pH of 7.2 as noted in the table. The chronic SL is both pH and water temperature dependent, and should use equations that consider early life stage fish to be present. While the listed SL is correct for waters cooler than 15°C, the SL will be lower than the value presented in Table 1 for waters warmer than 15°C.	3	Ammonia was not analyzed in the surface water and transition zone water samples.
42	Chlorobenzene – The citations and notes column of Table 1 should state that the SLs are for chlorobenzenes, not chlorobenzene (i.e. monochlorobenzene) specifically.	3	LWG agrees to insert this comment to the table.
43	Chloromethane – The citations and notes column of Table 1 should state that the SLs for chloromethane are based on the ODEQ acute criterion for halomethanes.	3	LWG agrees to insert this comment to the table.

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COMMENT NO.	EPA COMMENT	COMMENT CATEGORY	NOTES
44	Ethylbenzene – The ODEQ acute criterion for ethylbenzene is 32,000 µg/L, not the 3200 µg/L given in Table 1. The Table 1 chronic SL of 7.3 µg/L is correct. Given that ethylbenzene is proposed as a surrogate compound for which SLs will be used as the SLs for a number of other chemicals, EPA recommends that the more conservative Tier II acute SL of 130 µg/L be used as the acute SL for ethylbenzene.	3,4	The LWG agrees to apply the ODEQ acute criterion of 32,000 µg/L for ethylbenzene. However the application of the proposed chronic value is an exception to the EPA proposed hierarchy of selection criteria for water SLs. The LWG agrees to apply a more conservative Tier II acute SL value to chemicals for which ethylbenzene is a surrogate. However, LWG will maintain the ODEQ acute criterion when screening ethylbenzene.
45	Methyl isobutyl ketone (MIBK) – The citations and notes column of Table 1 should state that a commonly used synonym for MIBK is 4-methyl-2-pentanone. Suter and Tsao (1996), the source of the Tier 2 SLs used in the SL table for chemicals in water, present acute and chronic SLs of 2200 µg/L and 170 µg/L, respectively for MIBK. These values should be used as the MIBK acute and chronic SLs, as opposed to the values of 1800 µg/L and 99 µg/L listed in Table 1, which were based on the use of 2-hexanone as a surrogate compound for MIBK.	3	LWG agrees to incorporate EPA recommended acute and chronic SLs for MIBK as well as include the notes to the table.
46	Methylene bromide - The citations and notes column of Table 1 should state that the acute SL is based on the ODEQ acute criterion for halomethanes.	3	LWG agrees to add the notes to the table.
47	Methylene chloride – The acute SL should be the ODEQ acute criterion for halomethanes of 11,000 µg/L, not the Tier II value of 26,000 µg/L. The chronic SL should be 220 µg/L, which is the acute SL divided by 50. The citations and notes column of Table 1 should state that the acute SL is based on the ODEQ acute criterion for halomethanes.	1,3	LWG agrees with the EPA recommended ODEQ acute SL value for methylene chloride. LWG does not agree with the EPA recommended chronic SL, which is derived from the above acute value. This is contrary to the EPA proposed hierarchy. The Tier II methylene chloride value of 2,200 ug/L will be maintained for methylene chloride.
48	MTBE – The acute SL should be 151,000 µg/L, which is the draft EPA acute criterion for MTBE found in Mancini et al. 2002. MTBE ambient water quality criteria development. A public/private	3	LWG agrees to incorporate the EPA proposed acute SL for MTBE.

LWG COMMENT CATEGORIES

- | | |
|--------------------------------------|--|
| 1 – Strongly Disagree; cannot accept | 4 – Further discussion is needed |
| 2 – Disagree but can accept | 5 – Unclear; requires clarification from EPA |
| 3 – Agree | |

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**LWG response to EPA comments on Revised Draft, Table 1,
Selected Acute and Chronic Ecological Screening Levels (Eco SLs) for Chemicals in Water.
September 15, 2006**

COMMENT NO.	EPA COMMENT	COMMENT CATEGORY	NOTES
	partnership. Environ. Sci. Technol. 36:125-129.		
49	n-Butylbenzene - Based on the EPA recommended acute and chronic SLs for ethylbenzene (used as a surrogate compound for n-butylbenzene), the acute and chronic SLs should be 130 µg/L and 7.3 µg/L, respectively. See Specific Comment 44 for the discussion of how EPA obtained the ethylbenzene SLs.	3	See response to Comment 44.
50	n-Propylbenzene - Based on the EPA recommended acute and chronic SLs for ethylbenzene (used as a surrogate compound for n-propylbenzene), the acute and chronic SLs should be 130 µg/L and 7.3 µg/L, respectively. See Specific Comment 42 for the discussion of how EPA obtained the ethylbenzene SLs.	3	See response to Comment 44.
51	Pentachloroanisole – Pentachloroanisole has not been detected in surface water. EPA has not confirmed the LC50 derived values presented. Should this chemical be detected, EPA will evaluate whether the LC50 derived screening values are appropriate.	3	LWG agrees to exclude pentachloroanisole SL.
52	Perchlorate – The LWG has proposed using a number from Dean et. al. However, this value may not be protective of amphibians. EPA recommends using a chronic value of 18 µg/l based on Goleman et. al, 2002 (Environmentally Relevant Concentrations of Ammonium Perchlorate Inhibit Development and Metamorphosis in <i>Xenopus Laevis</i> , Environmental Toxicology and Chemistry, Vol. 21, No. 2, pp. 424–430, 2002). An acute value is not recommended at this time.	3	LWG agrees to use the more protective EPA recommended value for perchlorate.
53	p-Isopropyltoluene – If toluene is to be used as the surrogate compound for p-isopropyltoluene, the acute and chronic SLs should be 17,500 µg/L and 9.8 µg/L, respectively. The toluene SLs presented in Table 1 are correct.	3	LWG agrees to use toluene SL as a surrogate for p-Isopropyltoluene.
54	sec-Butylbenzene - Based on the EPA recommended acute and chronic SLs for ethylbenzene (used as a surrogate compound for sec-butylbenzene), the acute and chronic SLs should be 130 µg/L and 7.3 µg/L, respectively. See Specific Comment 42 for the	3	Please see response to comment 44.

LWG COMMENT CATEGORIES

- | | |
|--------------------------------------|--|
| 1 – Strongly Disagree; cannot accept | 4 – Further discussion is needed |
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**LWG response to EPA comments on Revised Draft, Table 1,
Selected Acute and Chronic Ecological Screening Levels (Eco SLs) for Chemicals in Water.
September 15, 2006**

COMMENT NO.	EPA COMMENT	COMMENT CATEGORY	NOTES
	discussion of how EPA obtained the ethylbenzene SLs.		
55	Styrene – The Ontario provincial water quality guideline for styrene is 4 µg/L, which should be used as the chronic SL. EPA is unable to identify an acute SL for styrene. See General Comment 5 on how to handle chemicals without acute SLs.	3	LWG agrees to incorporate the Ontario provincial water quality guideline for styrene as proposed by EPA.
56	tert-Butylbenzene - Based on the EPA recommended acute and chronic SLs for ethylbenzene (used as a surrogate compound for tert-butylbenzene), the acute and chronic SLs should be 130 µg/L and 7.3 µg/L, respectively. See Specific Comment 44 for the discussion of how EPA obtained the ethylbenzene SLs.	3	Please see response to comment 44.
57	Vinyl chloride – The values in Table 1 appear to be correct based on our review of the results of Brown et al. (1977) as presented in ECOTOX. The citations and notes column of Table 1 should be amended to clarify that the NR LETH/4 notation represents the 10 day LC ₁₀₀ for northern pike presented in Brown et al. (1977) divided by four.	3	LWG agrees to add the citations and notes to the table.
58	Vinylidene chloride – The citations and notes column of Table 1 should contain a notation that the more commonly used synonym for vinylidene chloride is 1,1-dichloroethylene.	3	LWG agrees to add the citations and notes to the table.
N/A	TPH-In the May 25, 2006 table of eco SLs, diesel and gasoline range hydrocarbon screening values (0.014 and 114 ug/l, respectively) were included at EPA's request, but with the qualifier that further discussion was needed. Additionally, the LWG requested a technical justification from the agency for the proposed screening levels. EPA has not yet provided technical justification for the screening levels in question		These values require further discussion. If the proposed values are based on surface sheen or other narrative criteria, they fail the data acceptability criteria for ecological screening because they are not based on a survival, growth, or reproductive endpoint.

LWG COMMENT CATEGORIES

1 – Strongly Disagree; cannot accept

2 – Disagree but can accept

3 – Agree

4 – Further discussion is needed

5 – Unclear; requires clarification from EPA

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Table 1. Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water^a

CONTAMINANT OF INTEREST ^b	SELECTED ACUTE SL (µg/L)	SELECTED CHRONIC SL (µg/L)	ACUTE SOURCE OR SURROGATE ^c	CHRONIC SOURCE OR SURROGATE ^c	CITATIONS AND NOTES ^d
Dioxins					
Dioxin (2,3,7,8 TCDD)	0.01	0.0001	ODEQ	AWQC	EPA (1984)
Dibenzofuran	66	3.7	Tier II	Tier II	
Metals					
Aluminum	750	87	AWQC	AWQC	These criteria only apply to waters within a pH range of 6.5 – 9.0 as given in the national AWQC.
Antimony	180	30	Tier II	Tier II	
Arsenic	340	150	AWQC	AWQC	As(III)
Barium	110	4	Tier II	Tier II	
Beryllium	35	0.66	Tier II	Tier II	Per EPA comments use Tier II instead of ODEQ guidance values.
Butyltin ion	0.46	0.072	AWQC	AWQC	TBT value
Cadmium	0.52	0.09	AWQC	AWQC	Criteria are hardness-dependent. These values correspond to a hardness of 25 mg/L calcium carbonate (estimate for lower Willamette River) and were adjusted using EPA-provided equations. Criteria are for dissolved fraction.
Chromium (III)	183.1	23.8	AWQC	AWQC	Criteria are hardness-dependent. These values correspond to a hardness of 25 mg/L calcium carbonate (estimate for lower Willamette River) and were adjusted using EPA-provided equations. Criteria are for dissolved fraction.
Chromium (VI)	16	11	AWQC	AWQC	Criteria are hardness-dependent. These values correspond to a hardness of 25 mg/L calcium carbonate (estimate for lower Willamette River) and were adjusted using EPA-provided equations. Criteria are for dissolved fraction.
Cobalt	1500	5.1	Tier II	LCV	

Table 1. Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water^a

CONTAMINANT OF INTEREST ^b	SELECTED ACUTE SL (µg/L)	SELECTED CHRONIC SL (µg/L)	ACUTE SOURCE OR SURROGATE ^c	CHRONIC SOURCE OR SURROGATE ^c	CITATIONS AND NOTES ^d
Copper	3.64	2.74	AWQC	AWQC	Criteria are hardness-dependent. These values correspond to a hardness of 25 mg/L calcium carbonate (estimate for lower Willamette River) and were adjusted using EPA-provided equations. Criteria are for dissolved fraction.
Cyanide	22	5.2	AWQC	AWQC	
Dibutyltin ion	0.46	0.072	AWQC	AWQC	TBT value
Iron	NA	1,000	NA	AWQC	Per EPA comments, exclude acute value.
Lead	13.88	0.54	AWQC	AWQC	Criteria are hardness-dependent. These values correspond to a hardness of 25 mg/L calcium carbonate (estimate for lower Willamette River) and were adjusted using EPA-provided equations. Criteria are for dissolved fraction.
Magnesium	820,000	82,000	LCV*10	LCV	
Manganese	2,300	120	Tier II	Tier II	
Mercury	1.4	0.77	AWQC	AWQC	
Methyl-mercury	0.099	0.0028	Tier II	Tier II	
Nickel	144.9	16.1	AWQC	AWQC	Criteria are hardness-dependent. These values correspond to a hardness of 25 mg/L calcium carbonate (estimate for lower Willamette River) and were adjusted using EPA-provided equations. Criteria are for dissolved fraction.
Potassium	530,000	53,000	LCV*10	LCV	
Selenium	12.8	5	AWQC	AWQC	The listed acute value is for selenate, and is the lower of the published criteria for selenate and selenite.
Silver	0.3	0.1	AWQC	ODEQ	AWQC are hardness-dependent. This value corresponds to a hardness of 25 mg/L calcium carbonate (estimate for lower Willamette River) and was adjusted using EPA-provided equations. Criteria are for dissolved fraction. ODEQ guidance value based on old AWQC (EPA 1980).
Sodium	6,800,000	680,000	LCV*10	LCV	
Thallium	1,400	40	ODEQ	ODEQ	
Tributyltin ion	0.46	0.072	AWQC	AWQC	Criteria apply to TBT ion concentration (EPA 2003a)

Table 1. Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water^a

CONTAMINANT OF INTEREST ^b	SELECTED ACUTE SL (µg/L)	SELECTED CHRONIC SL (µg/L)	ACUTE SOURCE OR SURROGATE ^c	CHRONIC SOURCE OR SURROGATE ^c	CITATIONS AND NOTES ^d
Vanadium	280	20	Tier II	Tier II	
Zinc	36.2	36.5	AWQC	AWQC	Criteria are hardness-dependent. These values correspond to a hardness of 25 mg/L calcium carbonate (estimate for lower Willamette River) and were adjusted using EPA-provided equations. Criteria are for dissolved fraction.
PAHs					
2-Methylnaphthalene	37	2.1	Tier II	Tier II	The acute and chronic SLs are for the surrogate compound 1-methynaphthalene.
Acenaphthene	80	23	Tier II	Tier II	The listed acute and chronic SLs are the EPA calculated FAV and FCV for sediment quality guideline development.
Acenaphthylene	80	306.9	acenaphthene	EPA (2003b) PAH mixtures	
Anthracene	13	0.73	Tier II	Tier II	The document calculated for AWQC, but never adopted.
Benzo(a)anthracene	0.49	0.027	Tier II	Tier II	
Benzo(a)pyrene	0.24	0.014	Tier II	Tier II	
Benzo(b)fluoranthene	NA	0.6774	NA	EPA (2003b) PAH mixtures	Per EPA, exclude the acute SL.
Benzo(b+j)fluoranthene	NA	0.6415	NA	benzo(k)fluoranthene	Per EPA, exclude the acute SL
Benzo(b+k)fluoranthene	NA	0.6415	NA	benzo(k)fluoranthene	Per EPA, exclude the acute SL
Benzo(g,h,i)perylene	NA	0.4391	NA	EPA (2003b) PAH mixtures	Per EPA, exclude the acute SL
Benzo(k)fluoranthene	NA	0.6415	NA	EPA (2003b) PAH mixtures	Per EPA, exclude the acute SL
Chrysene	NA	2.042	NA	EPA (2003b) PAH mixtures	Per EPA, exclude the acute SL
Dibenz(a,h)anthracene	0.24	0.2825	benzo(a)pyrene	EPA (2003b) PAH mixtures	
Fluoranthene	33.6	6.16	AWQC	AWQC	Presented in Suter and Tsao (1996) (Tier II), calculated for AWQC though never adopted.

Table 1. Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water^a

CONTAMINANT OF INTEREST ^b	SELECTED ACUTE SL (µg/L)	SELECTED CHRONIC SL (µg/L)	ACUTE SOURCE OR SURROGATE ^c	CHRONIC SOURCE OR SURROGATE ^c	CITATIONS AND NOTES ^d
Fluorene	70	3.9	Tier II	Tier II	
Indeno(1,2,3-cd)pyrene	0.24	0.275	benzo(a)pyrene	EPA (2003b) PAH mixtures	
Naphthalene	190	12	Tier II	Tier II	
Phenanthrene	30	6.3	AWQC	AWQC	Presented in Suter and Tsao (1996) (Tier II), calculated for AWQC though never adopted.
Pyrene	NA	10.11	NA	EPA (2003b) PAH mixtures	Per EPA, exclude the acute SL.
PCBs					
Aroclor 1221	5	0.28	Tier II	Tier II	
Aroclor 1242	1.2	0.053	Tier II	Tier II	
Aroclor 1248	1.4	0.081	Tier II	Tier II	
Aroclor 1254	0.6	0.033	Tier II	Tier II	
Aroclor 1260	1,700	94	Tier II	Tier II	
Total PCBs	2	0.014	ODEQ	Tier II	ODEQ value same as value presented in Suter and Tsao (1996) (Tier II), calculated for AWQC though never adopted. Total PCBs criterion applies to total PCBs, as either sum of all homologs, Aroclors, or congeners.
Pesticides					
2,4' D	800	4	LC50/2	MacDonald ES (1999), Ontario Water Quality objective	ECOTOX per EPA
2,4'-DDD	1.1	0.001	4,4'-DDT	4,4'-DDT	EPA (2006) National Recommended Water Quality Criteria
2,4'-DDE	1.1	0.001	4,4'-DDT	4,4'-DDT	EPA (2006) National Recommended Water Quality Criteria
2,4'-DDT	1.1	0.001	4,4'-DDT	4,4'-DDT	EPA (2006) National Recommended Water Quality Criteria
4,4'-DDD	1.1	0.001	4,4'-DDT	4,4'-DDT	EPA (2006) National Recommended Water Quality Criteria
4,4'-DDE	1.1	0.001	4,4'-DDT	4,4'-DDT	EPA (2006) National Recommended Water Quality Criteria
4,4'-DDT	1.1	0.001	AWQC	AWQC	These criteria apply to 4,4'-DDT and its metabolites as stated in Footnote ii of EPA (2006) AWQC.

Table 1. Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water^a

CONTAMINANT OF INTEREST ^b	SELECTED ACUTE SL (µg/L)	SELECTED CHRONIC SL (µg/L)	ACUTE SOURCE OR SURROGATE ^c	CHRONIC SOURCE OR SURROGATE ^c	CITATIONS AND NOTES ^d
Aldrin	3	0.3	AWQC	MacDonald ES (1999)	Acute AWQC were developed using previous guidelines (prior to 1985) and were calculated differently than other AWQC.
alpha-Endosulfan	0.22	0.056	AWQC	AWQC	Criteria were derived from data for endosulfan and are most appropriately applied to sum of alpha- and beta-endosulfan but can be applied to either, individually. Acute AWQC were developed using previous guidelines (prior to 1985) and were calculated differently than other AWQC.
alpha-Hexachlorocyclohexane	0.95	0.08	gamma-hexachlorocyclohexane	gamma-hexachlorocyclohexane	
beta-Endosulfan	0.22	0.056	AWQC	AWQC	
beta-Hexachlorocyclohexane	0.95	0.08	gamma-Hexachlorocyclohexane	gamma-Hexachlorocyclohexane	
Carbazole	465	18.6	LC50/2	LC50/50	Brooke (1991) as presented in ECOTOX
Chlordane	1.2	0.0043	AWQC/2	AWQC	Acute AWQC were developed using previous guidelines (prior to 1985) and were calculated differently than other AWQC and are divided by 2 so it is comparable to other AWQC values.
cis-Chlordane	2.4	0.0043	sum chlordane	per EPA	
cis-Nonachlor	1.2	0.0043	sum chlordane	sum chlordane	
Dalapon	NA	2	NA	literature	George et al. (1982)
delta-Hexachlorocyclohexane ^e	0.95	0.08	Lindane	Lindane	Per EPA, use lindane as a surrogate.
Dichloroprop	250	10	LC50/2	LC50/50	EPA (2000)
Dieldrin	0.24	0.056	AWQC	AWQC	
Endosulfan sulfate	0.22	0.056	alpha or beta endosulfan AWQC	alpha or beta endosulfan AWQC	
Endrin	0.086	0.036	AWQC	AWQC	
Endrin aldehyde	0.086	0.036	endrin	endrin	
Endrin ketone	0.086	0.036	endrin	endrin	

Table 1. Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water^a

CONTAMINANT OF INTEREST ^b	SELECTED ACUTE SL (µg/L)	SELECTED CHRONIC SL (µg/L)	ACUTE SOURCE OR SURROGATE ^c	CHRONIC SOURCE OR SURROGATE ^c	CITATIONS AND NOTES ^d
gamma-Hexachlorocyclohexane	0.95	0.08	AWQC	ODEQ	
Heptachlor epoxide	0.26	0.0038	AWQC/2	AWQC	Derived from data for heptachlor but may also be applied to heptachlor epoxide. Acute AWQC were developed using previous guidelines (prior to 1985) and were calculated differently than other AWQC and are divided by 2 to make the value comparable to other AWQC values.
Heptachlor	0.26	0.0038	AWQC/2	AWQC	Acute AWQC were developed using previous guidelines (prior to 1985) and were, therefore, calculated differently than other AWQC and are divided by 2 to make the value comparable to other AWQC values.
Methoxychlor	0.3	0.03	AWQC*10	AWQC	
Oxychlordane	1.2	0.0443	Chlordane	Chlordane	Per EPA, chlordane is used as a surrogate.
Retene	176.5	100	LC50/2	literature value	Billiard (1999)
Silvex	125	5.0	LC50/2	LC50/50	ECOTOX per EPA
Total DDT	1.1	0.001	AWQC	AWQC	AWQC for 4,4'-DDT applies to total DDTs. Acute AWQC were developed using previous guidelines (prior to 1985) and were calculated differently than other AWQC.
TPH					
Diesel ^f	NA	NA	NA	EPA	EPA comment 3.1.4. The value is not applied pending further technical justification from EPA as the proposed value (0.014 ug/l) is a narrative water quality number and does not meet the data acceptability criteria of a chronic endpoint based on survival, growth, reproduction.
Gasoline ^f	NA	NA	NA	EPA	EPA comment 3.1.4. The value is not applied pending further technical justification from EPA as the proposed value (114 ug/l) is a narrative water quality number and does not meet the data acceptability criteria of a chronic endpoint based on survival, growth, reproduction.
Phenols					
2,4-Dimethylphenol	2120	42.4	ODEQ	Acute value/50	

Table 1. Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water^a

CONTAMINANT OF INTEREST ^b	SELECTED ACUTE SL (µg/L)	SELECTED CHRONIC SL (µg/L)	ACUTE SOURCE OR SURROGATE ^c	CHRONIC SOURCE OR SURROGATE ^c	CITATIONS AND NOTES ^d
2-Chlorophenol	4380	2000	ODEQ	ODEQ	
2-Methylphenol	230	13	Tier II	Tier II	
3- and 4-methylphenol coelution	230	13	2-methylphenol	2-methylphenol	
Pentachlorophenol	10.7	8.2	AWQC	AWQC	The PCP criterion is pH dependent. The listed SLs were calculated for waters at a pH = 7.2 and will vary with the pH of the water column.
Phenol	3600	110	Tier II	Tier II	Presented in Suter and Tsao (1996) (Tier II), calculated for AWQC though never adopted.
Phthalates					
Bis(2-ethylhexyl) phthalate	27	3	Tier II	Tier II	
Butylbenzyl phthalate	150	3	Tier II*50	bis(2-ethylhexyl) phthalate	Per EPA, apply bis(2-ethylhexyl) phthalate value of 3 and a safety factor of 50 to calculate the acute value.
Dibutyl phthalate	150	3	Tier II*50	bis(2-ethylhexyl) phthalate	Per EPA, apply bis(2-ethylhexyl) phthalate value of 3 and a safety factor of 50 to calculate the acute value.
Diethyl phthalate	150	3	Tier II*50	bis(2-ethylhexyl) phthalate	Per EPA, apply bis(2-ethylhexyl) phthalate value of 3 and a safety factor of 50 to calculate the acute value.
Dimethyl phthalate	150	3	Tier II*50	bis(2-ethylhexyl) phthalate	Per EPA, apply bis(2-ethylhexyl) phthalate value of 3 and a safety factor of 50 to calculate the acute value.
Di-n-octyl phthalate	150	3	Tier II*50	bis(2-ethylhexyl) phthalate	Per EPA, apply bis(2-ethylhexyl) phthalate value of 3 and a safety factor of 50 to calculate the acute value.
SVOCs					
Benzoic acid	740	42	Tier II	Tier II	
Hexachlorobenzene	6.0	3.68	EPA	MacDonald ES (1999)	EPA draft criterion
Hexachlorobutadiene	90	9.3	ODEQ	ODEQ	
VOCs					
1,1,1-Trichloroethane	200	11	Tier II	Tier II	

Table 1. Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water^a

CONTAMINANT OF INTEREST ^b	SELECTED ACUTE SL (µg/L)	SELECTED CHRONIC SL (µg/L)	ACUTE SOURCE OR SURROGATE ^c	CHRONIC SOURCE OR SURROGATE ^c	CITATIONS AND NOTES ^d
1,1,2,2-Tetrachloroethane	2,100	610	Tier II	Tier II	EPA direction to use the Tier II acute value, instead of the ODEQ acute value.
1,1,2-Trichloroethane	18,000	9,400	ODEQ	ODEQ	
1,1-Dichloroethane	830	47	Tier II	Tier II	1,2-dichloroethene screening values apply to both cis- and trans-congeners.
1,1-Dichloroethene (1,1-Dichloroethylene)	450	25	Tier II	Tier II	
1,2,3-Trichloropropane	2,050	82	LC50/2	LC50/50	Kielhorn et al. (2003)
1,2,4-Trimethylbenzene	130	7.3	ethylbenzene	ethylbenzene	
1,2-Dichlorobenzene	260	14	Tier II	Tier II	
1,2-Dichloroethane	8,800	910	Tier II	Tier II	
1,2-Dichloroethene (trans)	1,100	590	Tier II	Tier II	
1,2-Dichloropropane	23,000	5,700	ODEQ	ODEQ	
1,3,5-Trimethylbenzene	130	7.3	ethylbenzene	ethylbenzene	
1,3-Dichlorobenzene	630	71	Tier II	Tier II	
1,4-Dichlorobenzene	180	15	Tier II	Tier II	
1,4-Dioxane	900,000	36,000	LC50/2	LC50/50	Brooke (1987), screening values are based on a measured LC50 for the amphipod <i>Gammarus pseudolimnaeus</i> .
2-Hexanone (me-butyl ketone)	1,800	99	Tier II	Tier II	
4-chloro-3-methylphenol	30	0.60	ODEQ	ODEQ/50	
Acetone	28,000	1,500	Tier II	Tier II	
Acrolein	68	21	ODEQ	ODEQ	
Ammonia	19,727	5,389	AWQC	AWQC	Ammonia was not analyzed in surface water or transition zone water.
Benzene	2,300	130	Tier II	Tier II	

Table 1. Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water^a

CONTAMINANT OF INTEREST ^b	SELECTED ACUTE SL (µg/L)	SELECTED CHRONIC SL (µg/L)	ACUTE SOURCE OR SURROGATE ^c	CHRONIC SOURCE OR SURROGATE ^c	CITATIONS AND NOTES ^d
Bis(2-ethylhexyl)adipate	240	24	LC50/2	Felder et al. (1986); <i>Daphnia</i> chronic value	MATC value; used lower end of range 24-52 ug/L
Bromochloromethane	11,000	220	ODEQ	ODEQ/50	ODEQ criteria for halomethanes.
Bromodichloromethane	11,000	220	ODEQ	ODEQ/50	ODEQ criteria for halomethanes.
Bromomethane	11,000	220	ODEQ	ODEQ/50	ODEQ criteria for halomethanes.
Carbon disulfide	17	0.92	Tier II	Tier II	
Chlorobenzene	250	50	ODEQ	ODEQ	The screening values are for chlorobenzenes, not chlorobenzene (i.e. monochlorobenzene) specifically.
Chloroethane	830	47	1,1-dichloroethane, Tier II	1,1-dichloroethane, Tier II	
Chloroform	28,900	1,240	ODEQ	ODEQ	
Chloromethane	11,000	220	ODEQ	ODEQ/50	The acute value is based on ODEQ acute criterion for halomethanes.
cis-1,2-Dichloroethene (cis-1,2-Dichloroethylene)	11,600	590	ODEQ	Tier II	
Dichlorodifluoromethane	11,000	90	ODEQ	Canadian EQG	ODEQ criteria for halomethanes.
Ethylbenzene	3200	7.3	ODEQ	Tier II	
Hexachloroethane	210	12	Tier II	Tier II	
Isophorone	117,000	130	ODEQ	MacDonald ES (1999)	
Isopropylbenzene (1-Methylethylbenzene)	130	7.3	ethylbenzene	ethylbenzene	
m,p-Xylene (m-xylene)	1,200	66.67	EPA	EPA	EPA (2006a)
m,p-Xylene (p-xylene)	230	13	xylene	Xylene	
Methyl isobutyl ketone	2,200	170	Tier II	Tier II	A commonly used synonym for MIBK is 4-methyl-2-pentanone.
Methylene bromide	11,000	11	ODEQ	MacDonald ES (1999)	The acute value is based on ODEQ acute criterion for halomethanes.
Methylene chloride	11,000	2,200	ODEQ	Tier II	The acute value is based on ODEQ acute criterion for halomethanes.

Table 1. Selected acute and chronic ecological screening levels (Eco SLs) for chemicals in water^a

CONTAMINANT OF INTEREST ^b	SELECTED ACUTE SL (µg/L)	SELECTED CHRONIC SL (µg/L)	ACUTE SOURCE OR SURROGATE ^c	CHRONIC SOURCE OR SURROGATE ^c	CITATIONS AND NOTES ^d
Methylethyl ketone	240,000	14,000	Tier II	Tier II	
MTBE	151,000	10,000	Mancini et al. (2002)	Canadian EQG	
n-Butylbenzene	130	7.3	ethylbenzene	ethylbenzene	
n-Propylbenzene	130	7.3	ethylbenzene	ethylbenzene	
o-Xylene	230	13	xylene	Xylene	
Perchlorate	NA	18	NA	Goleman et al. (2002)	
p-Isopropyltoluene (p-cymene)	17,500	9.8	toluene	toluene	
Sec-butylbenzene	130	7.3	ethylbenzene	ethylbenzene	
Styrene	NA	4	NA	MacDonald ES (1999)	
tert-Butylbenzene	130	7.3	ethylbenzene	ethylbenzene	
Tetrachloroethene	5,280	840	ODEQ	ODEQ	
Toluene	17,500	9.8	ODEQ	Tier II	
trans-1,2-Dichloroethene	11,600	590	ODEQ	Tier II	
Trichloroethene	45,000	21,900	ODEQ	ODEQ	
Trichlorofluoromethane	11,000	580	ODEQ	MacDonald ES (1999)	Acute from ODEQ criteria for halomethanes.
Vinyl acetate	280	16	Tier II	Tier II	
Vinyl chloride	97,000	3,880	NR LETH/4	LC50/50	Brown et al. (1977); NR LETH/4 notation represents the 10-day LC ₁₀₀ for northern pike divided by four.
Vinylidene chloride	11,600	25	ODEQ	Tier II	
Xylene	230	13	Tier II	Tier II	

^a The process for developing these screening levels is presented in a technical memo (Windward 2005). As recommended by EPA, these screening levels are intended to be part of a tool that is “easy to use, fast, and conservative” (EPA 2005). As such, these are conservative screening values and will be taken into context through the risk process (evaluation of derivation of SL, background, etc). Water SLs will be used to evaluate surface water and transition zone water. Other water data (e.g. seep water) may be evaluated using water SLs as agreed upon between LWG, EPA, and EPA’s partners.

^b Contaminants of interest included detected chemicals from water samples from Round 2 data collection (including surface water and transition zone water) except nutrients, petroleum products (heavy oil and motor oil), and PCB congeners (dioxin-like congeners will be included in dioxin value).

- ^c Ambient Water Quality Criteria (AWQC) are from EPA (2002) and EPA(2006b). Tier II and lowest chronic values (LCV) are from Suter and Tsao (1996). Oregon Department of Environmental Quality (ODEQ) values are from ODEQ (2001). PAH mixture values are from EPA (2003b). Canadian EQG are from Canadian Water Quality Guidelines updated 2005. MacDonald ES (1999) are from Environment Canada, Georgia Basin Action Plan compendium of environmental quality benchmarks.
- ^d References cited from ECOTOX and primary literature.
- ^e An acute screening value for delta-hexachlorocyclohexane exists from MacDonald ES (1999), the proposed EPA value was applied, but requires more technical explanation for using a lindane surrogate number.
- ^f The proposed EPA chronic value for gasoline and diesel range hydrocarbons (0.014 ug/L) is not applied pending further technical justification from EPA. The proposed EPA number is a narrative water quality criteria and does not meet data acceptability standards of a chronic toxicity endpoint of growth, reproduction, or mortality.

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